

**Stachys annua* L., *S. Italica* Mill. (not **S. Germanica* L.), *Vicia hirsuta* Koch.

It will be noticed that no grasses are mentioned. These, and a few other doubtful plants, may be added later. Plants that have been collected but once are (with a few exceptions) omitted.

PROVIDENCE, R. I.

TWO PLANTS OF THE CROWFOOT FAMILY.

M. L. FERNALD.

(Plate 3.)

AMONG the most beautiful early summer flowers in northern New England is a tall white anemone of the river-banks. Growing ordinarily in the crevices of ledges and river-cliffs or on their gravelly talus-slopes, spots rarely visited except by occasional botanists or geologists, this plant is by no means so well known in the regions where both grow as the very attractive, but distinctly less graceful, *Anemone canadensis* (*A. pennsylvanica*). In the Maine station — beneath arbor-vitæ on calcareous-slate cliffs and ledges by the Piscataquis, in Dover — where the tall slender plant has been most familiar to me, it is associated with a host of northern or lime-loving species, as *Cystopteris bulbifera*, *Graphephorum melicoideum*, *Scirpus Clintonii*, *Rosa blanda*, *Amelanchier rotundifolia*, *Vitis vulpina* (*V. riparia*), *Lobelia Kalmii*, and *Erigeron hyssopifolius*.

For several years, while clambering about these rocky banks, supposing the plant to be *Anemone virginiana*, I regularly passed it without special thought. Later, however, when the coarse *A. virginiana*, with its usually insignificant greenish flowers, had become familiar to me, I looked forward to the time when I could study critically the slender white-flowered plant of the north.

In late August, 1897, the plants, then in over-ripe fruit, were carefully examined, and during September fruiting plants were studied also at other points in Aroostook and Penobscot Counties. In the following June (1898) the Dover station was visited, and at that time, June 11, the steep sheltered bank was everywhere flecked with the clear-white flowers of the anemone.

Upon further study, the Dover plant proves to be identical with a

specimen collected in 1829 by J. W. Robbins, on rocky ledges in Castleton, Vermont. Robbins's plant was described in a few words by Oakes as *Anemone cylindrica*, var. *alba*. Later, however, Wood published the same plant as *A. virginiana*, var. *alba*. It has not been generally recognized as a noteworthy form of either species, except perhaps by Professor Peck, who has recently revived Wood's varietal name for a plant "common in the hilly parts of Sullivan county [New York], where it is the prevailing form."¹ Other specimens of the plant have been referred, some to *A. cylindrica*, some to *A. virginiana*, while the New Brunswick specimens have been hesitantly placed at different times under both species.

Observations in the field and study of herbarium specimens show that, in some characters, the northern white-flowered plant is intermediate between *Anemone cylindrica* and *A. virginiana*. In its large clear-white flowers this plant is quite different from the ordinary forms of either of those species with their thick greenish sepals. They do not differ, however, from exceptional specimens with white petaloid sepals of *A. virginiana*. In general habit the plant suggests the latter species, but it is decidedly more slender and graceful and usually more glabrate; and the thin cuneate leaf-segments are much more coarsely and sharply toothed above than are the thickish ovate segments of *A. virginiana*. Like that species, but unlike most *A. cylindrica*, the peduncles of the northern plant are commonly proliferous. The fruiting heads, on the other hand, are not unlike short heads of *A. cylindrica*; but from well-developed heads of that species they are readily distinguished. A series of measurements from herbarium material brings out very well some of the differences in the heads of these three plants: —

	Average length.	Average thickness.
<i>Anemone virginiana</i> (22 heads)	18.25 mm.	13.35 mm.
<i>A. sp.</i> (18 heads)	16.85 mm.	9.45 mm.
<i>A. cylindrica</i> (30 heads)	30.45 mm.	8.00 mm.

In the length of the head, then, *A. cylindrica* much exceeds both the others, while in thickness of the head both that species and the plant of the northern river-banks are greatly exceeded by *A. virginiana*. In another character the head of the white-flowered species is more like that of *A. cylindrica* than of *A. virginiana*: while in *A. virginiana* the persistent styles are spreading, giving the head an echinate appear-

¹ Peck, 47th Ann. Rep. 27.

ance, in the other two plants the somewhat less firm styles remain ascending or often even appressed. These differences in the fruiting heads, as well as the general habit of the small-headed plant, are clearly brought out in the drawing kindly prepared by Mr. Charles E. Faxon.

In the fruiting heads, probably, are found the best marked characters for distinguishing the northern plant from *A. virginiana*. Though the larger white flowers are generally quite distinct they are subject to such variation as to make them a final criterion in determining the northern species only when associated with the habital, foliage, and fruiting characters already emphasized, for the flowers of the small-headed species are sometimes small and those of the large-headed *A. virginiana* are not infrequently petaloid. The *Anemone* of the northern river-banks, however, is a much earlier species than the coarser more southern *A. virginiana*. In its flowering season it more nearly resembles the even more southern *A. cylindrica*. In central Maine the slender white-flowered species of the shaded river-cliffs and sheltered banks is well in flower by the middle of June, and its fruiting heads are practically mature a month later, when the coarse *A. virginiana* of the sunny gravelly slopes and open woods begins to bloom.

The smaller-headed plant, as already suggested, is, in Maine at least, the northern representative of the group including *A. cylindrica* and *A. virginiana*. It is apparently a common plant along all the northern rivers coming south on the Penobscot to Veazie, and on the Androscoggin to Gilead. So far as known its range does not overlap that of *A. cylindrica*, which reaches its northern limit on the lower Androscoggin. In the Penobscot valley, however, its range slightly overlaps that of *A. virginiana*. There the latter species reaches its northern limit in Maine on the dry gravelly esker skirting the river only a mile or two above the cliffs at Veazie, where occurs the southernmost known station of the more slender plant. In such a region of overlapping ranges one might expect to find forms intermediate between the two species, but as yet none have been detected; perhaps because the very dissimilar habitats of the plants, the one on damp sheltered cliffs and ledges, the other on dry sunny gravel, may tend to keep them apart. The slender small-headed plant, differing from the species with which it has long been associated, not only in well marked structural characters, but in range, habitat, and flowering season as well, is here proposed, with confidence that it merits such recognition, as a distinct species:

Anemone riparia. Plant comparatively slender, 3 to 9 dm. high, glabrate or loosely pubescent especially below on the petioles and at the base of the involucre: leaves thin, 3-divided, the cuneate-lanceolate or cuneate-ovate divisions unequally cleft into coarsely and sharply toothed segments, the lateral divisions very deeply cleft: involucre 3-leaved, subtending the 1 to 5 slender elongated naked or involucellate sometimes proliferous appressed-silky peduncles: sepals unequal, oval or obovate, obtuse or acutish, 1.5 to 2 cm. long, thin, clear-white, canescent-tomentose or glabrate without: heads of carpels oblong, short-cylindrical, 1.5 to 2 cm. long, scarcely 1 cm. thick; the slender persistent styles ascending or appressed much as in *A. cylindrica*. — *A. cylindrica*, var. *alba*, Oakes, Hovey's Mag. vii. 182. *A. virginiana*, var. *alba*, Wood, Class Book, 203. — Abundant on rocky banks and in the crevices of wet calcareous-slate ledges along the Piscataquis River, Dover, Maine, collected by the author June 25, 1894, August 31, 1897 and June 11, 1898, no. 2201; also collected at Dover by *Geo. B. Fernald*, June, 1896. Besides the Dover material, specimens from the following stations have been examined: Magdeleine River, Gaspé, Quebec, August 5, 1882 (*John Macoun*, no. 932); shore, Lake St. John, Roberval, Quebec, July 20 1892 (*G. G. Kennedy*); Restigouche Co., New Brunswick, August, 1867 (*J. Fowler*); along the St. John River, Fort Kent, Maine, 1881 (*Kate Furbish*); rocky banks Aroostook River, Fort Fairfield, Maine, July 4, 1893, no. 1, ledges by Medux-nakeag River, Houlton, August, 1897, river-cliffs by the Penobscot, Veazie, September, 1897, and in seepy open ground, Foxcroft, June 11, 1898 (*M. L. Fernald*); rocky banks of the Androscoggin, Gilead, Maine, August, 1897 (*Kate Furbish*); abundant about Willoughby Lake, Vt., June 22, 1892 (*G. G. Kennedy*), June 5, 1895 (*J. R. Churchill*); on rocky ledges, Castleton, Vermont, 1829 (*J. W. Robbins*); also reported by Robbins from "Burlington, and other places in Vermont, also in Uxbridge, Mass.;" western New York (*Asa Gray*); reported by Professor Peck from Sullivan County, New York.

Another common northern New England plant of the *Ranunculaceae*, which is not described in the standard works upon that group, and which seems to have been nowhere distinguished in print, is a slender flexuous plant closely related to *Ranunculus abortivus*, L. Aside from its more flexuous habit the plant is quickly recognized, especially in the mid-summer state, by its glossy-green orbicular radical leaves, which generally have nearly or quite closed sinuses. This plant,

apparently first collected by Miss Kate Furbish, has some of the leaves, except for their thinner glossy character, like those of typical *R. abortivus*, and the heads though somewhat smaller cannot otherwise be distinguished from those of that species, which, though less common, occurs apparently throughout the range of the round-leaved plant here proposed as —

RANUNCULUS ABORTIVUS, L., var. **eucyclus**. Stems more slender than in the type; the branches slender and flexuous: leaves very thin and lucid; the basal generally of two sorts, some orbicular with a narrow or closed sinus, others reniform as in typical *R. abortivus*: flowers, achenes, and receptacles as in the species, but smaller. — A common and striking form in central and northern Maine, first collected by *Miss Kate Furbish* at East Livermore, June, 1888, and subsequently at Gilead in 1897. Collected by the author at the following Maine stations, generally in moist woods or on shaded river-intervalles: St. Francis, August, 1893; Fort Kent, June, 1898; Fort Fairfield, July, 1893, no. 5; Houlton, August, 1897; Island Falls, September, 1897; Dover, June, 1895; Orono, June, 1898; Waterville, September, 1898. A plant with thicker but orbicular and lucid leaves growing in an open field at North Berwick (*J. C. Parlin* and *M. L. Fernald*) is doubtfully referred here. In Quebec at Tadousac, Aug. 7, 1892, and Roberval, Lake St. John, Aug. 24, 1892 (*G. G. Kennedy*). Collected also in New Hampshire — Ammonoosuc Lake, Crawford Notch, July 4, 1898 (*J. M. Greenman*); Alstead, August, 1898 (*W. L. W. Field* and *M. L. Fernald*), and in western Massachusetts — Williamstown, June 1, 1898 (*J. R. Churchill*).

EXPLANATION OF PLATE 3. — *Anemone riparia*: fig. 1, small flowering plant; fig. 2, fruiting head. *A. virginiana*: fig. 3, fruiting head. *A. cylindrica*: fig. 4, fruiting head.

EPIPACTIS HELLEBORINE AT STOCKBRIDGE, MASSACHUSETTS. — In August, 1898, while I was in Stockbridge, Berkshire Co., Mass., a lady brought me two or three fresh specimens of an orchid which she asked me to identify. A study of the Manual led me to suspect that it was *Epipactis Helleborine* Crantz, which has been found hitherto only at Toronto, Syracuse and Buffalo. Mr. Walter Deane, to whom I gave the specimen, confirmed my suspicion. The only piece which I preserved is now in Mr. Deane's herbarium.